REMARKS

Applicant has amended the specification to include two new tables, Table 4A and Table 4B. Table 4A contains strontium-rubidium separation factors calculated using data from Table 2 and Table 4 by dividing the strontium selectivity by the rubidium selectivity as described in the specification. Table 4B contains rubidium retention values which are calculated from the K_d values provided in Table 4. By solving Equation (2) in the specification for A_f and substituting the values of K_d from Table 4, the rubidium retention values, mCi per 100 mCi, can be calculated for a system having an exchanger mass of 0.1 g and a solution volume of 50 mL. Accordingly, Applicant asserts that these Tables are not new matter but merely present the data from Table 2 and Table 4 in an alternate form. Entry of these tables into the specification is respectfully requested.

Applicant has amended claims 39-41 and 54-57 to correct the antecedent basis of the claims. Applicant has amended claim 10 to better define the claimed invention. Entry of the amendments to these claims is respectfully requested.

Claims 25, 34, 38, 50 and 54 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

Concerning claim 25, support may be found in the specification, page 5, lines 3-4, which states "[t]he sodium hydroxide to titanium isopropoxide molar ratio is preferably between 1 and 10, more preferably between 2 and 6 and most preferably about 4." Reconsideration and withdrawal of the rejection of claim 25 is respectfully requested.

Claims 34, 38 and 54 have been cancelled.

Concerning claim 50, Example 7 discloses buffering a solution of RbCl at a pH of between 9 and 10 (Specification, p. 17, ln. 2-3 of Example 7), then discloses that "[t]he performance could be improved by removing the buffer and increasing the pH to improve the amounts of strontium absorbed." (Specification, p. 18, last paragraph of example 7). These statements support the limitation "wherein the pH is greater than 10." Reconsideration and withdrawal of the rejection of claim 50 is respectfully requested.

Applicant has submitted new claims and respectfully requests that they be entered. Applicant provides the following table that includes the citations to the Specification where the limitations find adequate support.

Claim Language Claims 58-74	Citation to the Specification	"From the Specification"
58. A filter for filtering a rubidium-82 rich eluant from a rubidium-82 generator having strontium-82 immobilized on a solid substrate, the filter comprising: a sodium nonatitanate filter medium disposed to receive the eluant to trap strontium-82 leached from the generator	Pg. 7, ln. 2-3	It is also possible to use sodium nonatitanate in the form of a disposable add on filter that could be used to trap any ^{82}Sr that is leached from the generator during the production of ^{82}Rb.
59. The filter of claim 58, further comprising: a container for holding the sodium nonatitanate filter medium, wherein the container is in fluid communication with an outlet of the rubidium-82 generator		*Id.*
60. The filter of claim 59, wherein the filter is disposable		*Id.*
61. The filter of claim 58, wherein the sodium nonatitanate filter medium comprises pellets of sodium nonatitanate	Pg. 6, ln. 6-7	and the sodium nonatitanate powder can be manufactured into pellets appropriate for column operations.
62. The filter of claim 58, wherein the sodium nonatitanate filter medium is a powder		*Id.*
63. The filter of claim 58, wherein the sodium nonatitanate is characterized by a strontium selectivity greater than 250,000 mL/g at an alkaline pH	Claim 2	
64. The filter of claim 58, wherein the sodium nonatitanate is characterized by a rubidium selectivity less than 100 mL/g at an alkaline pH	Claim 3	
65. Same as claim 6 except "sodium chloride" has been replaced with "soluble sodium salt" and "titanium isopropoxide" has	Pg. 4, last paragraph under Summary, next to last line.	. . . and a soluble sodium salt, wherein the sodium salt concentration is between 0.1 and 1 molar.

been replaced with titanium tetrachloride or sulfate	Pg. 8, ln. 12-18	Alternative titanium salts that could be used to manufacture sodium nonatitanate include titanium tetrachloride, $TiCl_4$, and titanium sulfate, $TiOSO_4.xH_2SO_4.yH_2O$. However, hydrolysis of these salts leads to the generation of hydrochloric acid and sulfuric acid, respectively, and thus additional base is required during the hydrothermal process. The final product also needed to be exhaustively washed to remove residual sodium chloride or sodium sulfate. Consequently, titanium isopropoxide (which hydrolyzes to form propanol) is the preferred starting material because the final product is free from additional sodium salts.
66. The process of claim 65, wherein the soluble sodium salt is sodium chloride.	Claim 6 (original)	
67. The process of claim 65, wherein the aqueous sodium hydroxide is about 50 wt% sodium hydroxide.	Claim 21	
68. The process of claim 65, wherein the molar ratio of aqueous sodium hydroxide to titanium tetrachloride or titanium sulfate is between about 1 and 12.	Claim 25 coupled with p. 8, ln. 12-18	However, hydrolysis of these salts leads to the generation of hydrochloric acid and sulfuric acid, respectively, and thus additional base is required during the hydrothermal process.
69. The process of claim 65, wherein the sodium nonatitanate is filtered from the mixture	Pg. 7, last line	. . . the materials were filtered
70. The process of claim 69, wherein the sodium nonatitanate is washed to remove sodium chloride or sodium sulfate.	Pg. 8, ln. 12-18	The final product also needed to be exhaustively washed to remove residual sodium chloride or sodium sulfate.
71-75. Same as claims 6-8 and 21 except that "sodium chloride" has been replaced by "soluble sodium salt" and the concentration has been moved to claim 75.	Pg. 4, last paragraph under Summary, next to last line.	. . and a soluble sodium salt, wherein the sodium salt concentration is between 0.1 and 1 molar.
76. The process of claim 71, further comprising: loading the sodium nonatitanate into a column after absorbing strontium-82.	Pg.7, lns. 9-10	
77. The process of claim 76, characterized by uniform loading of strontium-82 throughout the sodium nonatitanate.	Pg.7, lns. 9-11	
78. The process of claim 10, wherein the solution containing strontium-82 is an acidic aqueous solution.	P. 13, ln. 17 (Example 4). P. 4, lns. 29-30.	In these tests, the final pH remained between 5.2 and 6.3, ... and absorbing strontium-82 on the

		sodium nonatitanate from an aqueous solution comprising strontium-82 . . .
79. A rubidium-82 generator, comprising: a strontium-82 support medium comprising sodium nonatitanate characterized by a strontium/rubidium separation factor greater than 12,500.	Claim 1; Table 2; Table 4;	
80. The rubidium-82 generator of claim 79, wherein the separation factor is determined in an aqueous sodium chloride solution.	Table 2; pg. 11, ln. 14; Table 4	Table 2. Strontium selectivity data from unbuffered sodium chloride solutions. . . . the aqueous phase. Table 4. Rubidium selectivity data from unbuffered sodium chloride solutions.
81. The rubidium-82 generator of claim 80, wherein the aqueous sodium chloride solution has a sodium chloride concentration from 0.001 molar to 1 molar.	Pg. 10, lns. 4-5.	The concentration of the chloride solutions was varied from 1 M to 0.001 M . . .
82. The rubidium-82 generator of claim 80, wherein the aqueous sodium chloride solution is buffered.	Pg. 14, ln. 27; Example 7.	. . . an ammonia/ammonium chloride buffer solution.
83. The rubidium-82 generator of claim 80, wherein the aqueous sodium chloride solution is unbuffered.	Table 2; Table 4	Table 2. Strontium selectivity data from unbuffered sodium chloride solutions. Table 4. Rubidium selectivity data from unbuffered sodium chloride solutions.
84.The rubidium-82 generator of claim 79, wherein the sodium nonatitanate is characterized by a strontium selectivity greater than about 85,000 mL/g in a 0.1 molar or 1 molar aqueous sodium chloride solution.	Table 2	See Table 2 for data
85. The rubidium-82 generator of claim 80, wherein the aqueous sodium chloride solution is unbuffered.	Table 2; Table 4	Table 2. Strontium selectivity data from unbuffered sodium chloride solutions. Table 4. Rubidium selectivity data from unbuffered sodium chloride solutions.
86.The rubidium-82 generator of claim 79, wherein the sodium nonatitanate is characterized by a rubidium selectivity less than 100 mL/g in a 0.1 molar aqueous sodium chloride solution.	Table 4	See Table 4 for data.
87. The rubidium-82 generator of claim 80, wherein the aqueous sodium chloride solution is unbuffered.	Table 2; Table 4	Table 2. Strontium selectivity data from unbuffered sodium chloride solutions. Table 4. Rubidium selectivity data from unbuffered sodium chloride solutions.

88. The rubidium-82 generator of claim 79, wherein the sodium nonatitanate is characterized by a strontium/rubidium separation factor greater than 10,000 in a 1 molar aqueous sodium chloride solution.	Table 2; Table 4; Table 4A	See Tables for data.
89. The rubidium-82 generator of claim 79, wherein the sodium nonatitanate is characterized by a rubidium retention of less than 1.8 % in a 1 molar aqueous sodium chloride solution.	Table 2; Table 4; Table 4B	See Tables for data.
90. The rubidium-82 generator of claim 79, wherein the sodium nonatitanate is characterized by a rubidium retention of less than about 13.6 % in a 0.1 molar aqueous sodium chloride solution.	Table 2; Table 4; Table 4B	See Tables for data.
91. The rubidium-82 generator of claim 79, wherein the sodium nonatitanate is characterized by a rubidium retention of less than about 40 % in a 0.01 molar aqueous sodium chloride solution.	Table 2; Table 4; Table 4B	See Tables for data.
92. The rubidium-82 generator of claim 79, wherein the sodium nonatitanate is characterized by a rubidium retention of less than about 50 % in a 0.001 molar aqueous sodium chloride solution.	Table 2; Table 4; Table 4B	See Tables for data.
93. The rubidium-82 generator of claim 79, wherein the generator contains less than 1 gram of sodium nonatitanate.	Pg. 6, ln. 20	Furthermore, less than 1 g of sodium nonatitanate material is needed in a ^{82}Rb generator . . .
94. A process, comprising: eluting a solution of rubidium-82 from a strontium-82 support medium comprising sodium nonatitanate with an aqueous solvent.	Pg. 4, lns. 10-11; pg. 5, lns. 8-12.	. . . allow elution of the ^{82}Rb . . . . . . eluting rubidium-82 from the sodium nonatitanate support medium with a solvent. The solvent is preferably selected from the group consisting of water and saline solutions.
95. The process of claim 94, wherein the aqueous solvent is selected from the group consisting of water and saline solutions.	Pg. 5, lns. 8-12.	. . . eluting rubidium-82 from the sodium nonatitanate support medium with a solvent. The solvent is preferably selected from the group consisting of water and saline solutions.
96. The process of claim 94, wherein the aqueous solvent has a sodium chloride concentration between 0.001 molar and 1 molar.	Pg. 5, lns. 10-12.	More particularly, the solvent may be an aqueous solution having a sodium chloride concentration between 0.001 molar and 1 molar, preferably between 0.2 molar and 1 molar.

97. The process of claim 94, wherein the aqueous solvent has a sodium chloride concentration between 0.2 molar and 1 molar.	Pg. 5, lns. 10-12.	More particularly, the solvent may be an aqueous solution having a sodium chloride concentration between 0.001 molar and 1 molar, preferably between 0.2 molar and 1 molar.
98. The process of claim 94, wherein the aqueous solvent is a pharmaceutical-grade saline and buffer solution.	Pg. 5, lns 11-12.	The solvent may also be a pharmaceutical grade isotonic saline and buffer solution.
99. The process of claim 94, wherein the sodium nonatitanate is a reaction product of titanium isopropoxide and aqueous sodium hydroxide.	Pg. 4, lns. 26-27.	. . . preparing sodium nonatitanate from titanium isopropoxide and aqueous sodium hydroxide; . . .
100. The process of claim 94, further comprising passing the rubidium-82 solution through a sodium nonatitanate filter to selectively remove any strontium-82 or strontium-85 from the solution.	Pg. 7, lns. 2-4	. . ., it is also possible to use sodium nonatitanate in the form of a disposable add-on filter that could be used to trap any ^{82}Sr that is leached from the generator during the production of ^{82}Rb.
101. The process of claim 100, further comprising disposing of the sodium nonatitanate filter.	Pg.7, lns. 2-3	. . ., it is also possible to use sodium nonatitanate in the form of a disposable add-on . . .
102. The process of claim 94, further comprising using the rubidium-82 solution as a medical diagnostic agent or medical imaging agent	Pg 2, ln 10	The use of radioisotopes as diagnostic and imaging agents in medicine . . .
103. The process of claim 94, further comprising injecting the rubidium-82 solution intravenously.	Pg 2, ln 20	. . ., after ^{82}Rb is injected intravenously, . . .
104. The process of claim 94, further comprising stripping strontium-82 from the sodium nonatitanate	Pg. 6, ln. 29-30	The sodium nonatitanate is also more amenable to recycling since the ^{82}Sr can readily be stripped with mineral acid.
105. The process of claim 104, further comprising recovering the stripped strontium-82.	Pg. 6, ln. 29-33	. . . the recovery of ^{82}Sr from this source.
106. The process of claim 104, further comprising recycling the sodium nonatitanate.	Pg. 6, ln. 29-30	The sodium nonatitanate is also more amenable to recycling since the ^{82}Sr can readily be stripped with mineral acid.
107. The rubidium-82 generator of claim 94, wherein the sodium nonatitanate has not undergone hydrothermal treatment.	Tables 2-5; pg. 11, ln. 17	NaTi (no hydrothermal) The highest K_d was observed for the non-hydrothermal material . . .
108. The rubidium-82 generator of claim 1, wherein the sodium nonatitanate has not undergone hydrothermal treatment.	Tables 2-5; pg. 11, ln. 17	NaTi (no hydrothermal) The highest K_d was observed for the non-hydrothermal material . . .

109. The rubidium-82 generator of claim 5, wherein the sodium nonatitanate has not undergone hydrothermal treatment.	Tables 2-5; pg. 11, ln. 17	NaTi (no hydrothermal) The highest K_d was observed for the non-hydrothermal material . . .
110. (new) The process of claim 10, wherein the solution containing strontium-82 is an alkaline aqueous solution.	Pg. 4, lns. 14-17.	This comprises dissolving the molybdenum metal target containing the strontium-82, adjusting the pH of the dissolved molybdenum target solution to an alkaline pH, removing precipitates from the solution, and then absorbing the strontium-82 from the solution onto a support comprising sodium nonatitanate.

Applicant respectfully asserts that all claims are now in condition for allowance and earnestly seeks a timely Notice of Allowance. If the Examiner determines that a telephone interview would expedite the examination of the pending application, the Examiner is invited to call the undersigned attorney. In the event there are additional charges in connection with the filing of this Response, the Commissioner is hereby authorized to charge the Deposit Account No. 50-0714/LYNN/0119 of the firm of the below-signed attorney in the amount of any necessary fee.

Respectfully submitted,

Frank J. Campigotto
Attorney for Applicant
Registration No. 48,130
STREETS & STEELE
13831 Northwest Freeway, Suite 355
Houston, Texas 77040
(713) 939-9444